

Effective Classroom Assessment Design

Green River Regional Educational Collaborative

February 11-12, 2007



Agenda Overview



- Debrief of interim work
- Adjusting documents to fit needs
- Creating Classroom Assessments
- Designing Multiple-Choice Tasks
- Designing Short-Answer Tasks
- Designing Constructed-Response Tasks
- Closing and reflections

Today's Goals

Participants will

- Reflect on the work done in the interim and determine next steps for improving assessment practices.
- Examine documents and determine appropriate ways to make adjustments for their students' needs.
- Develop effective assessment tasks using design considerations.
- Apply classroom assessment practices and tasks to their pedagogy and evaluate results.

Interim Work

- Review your curriculum between January and February.
- Determine which standards are associated with the learning.
- Unpack those standards and create learning targets for your students.
- Choose appropriate and varying assessments to use in determining student progress toward the standards.
- Please bring samples of your assessments and student work to the next session.

Discussion Guide

This will be a backward process. Be prepared to discuss.

- Begin with the student results.
- Determine which work hit the target, almost hit the target, and which missed the target.
- If you have work that missed the target, evaluate the assessment. Did it assess the target?
- Was the target aligned to the standard?
- What instruction took place?
- What can be done to improve the alignment?
- If the alignment is correct, what will your next steps be instructionally?

Discussion Guide

- For work that almost hit the target, evaluate where the students made errors.
- Was there something in the assessment that is unclear or could have caused confusion?
- What feedback should be given to the students?
- How could this target be reassessed for those students that missed a portion of it?
- What will your next steps be instructionally?

Discussion Guide

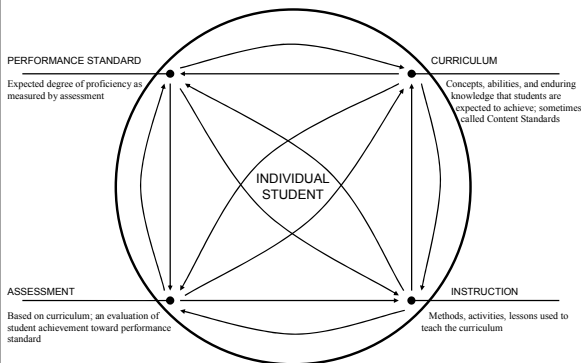
- For work that hit the target, evaluate why the students were successful.
- What about the alignment of the standard, target, and assessment worked?
- What feedback should be given to the students?
- How could this target be accelerated if it seems to be below the level of the students?
- What will your next steps be instructionally?

Adjusting Documents to Fit Needs

- This is an idea exchange.
- Review the templates that were provided last session.
- Not all templates are immediately applicable to all classroom settings, age groups, or content areas.
- Find one or two that are of interest to you but you feel need adjusting.
- Generate ideas at your table group about how these templates could be adjusted.
- Help each other with your expertise.
- Be prepared to share with the whole group.

Standards-Based Planning

Interactive Curriculum, Instruction, Assessment Cycle



What Constitutes Effective Classroom Assessment?

Key Points

- Assessment is information, not scores
(Scores are accountability)
- Assessment is best done early and often
(Assessment at the end is accountability)



What Constitutes Effective Classroom Assessment?

Assessment that

- provides evidence of student performance relative to content and performance standards
- provides teachers and students with insight into student errors and misunderstanding
- helps lead the teacher directly to action

Practical Standards of Assessment Quality

- Serve clearly articulated *purposes*
- Arise from and reflect clear *achievement targets*
- Rely on the appropriate assessment *method* given the context
- *Sample* student achievement appropriately
- Avoid unwanted sources of *interference or error*

Multiple-Choice Format

A school bus holds 36 high school students. If 1,128 high school students are being bused to a special event, how many buses are needed?

- a. 12
- b. 31
- c. 31.33
- d. 32

Constructed-Response Format

A school bus holds 36 high school students. If 1,128 high school students are being bused to a special event, how many buses are needed? Explain your answer.

Student Responses to the Constructed-Response Task

1. If you have 31 buses there are 12 students left over. These 12 students can squeeze into 31 buses. So they just need 31 buses.
2. You need 31 buses, but there are 12 students left. They need to go, too. But one bus for these 12 students is too big. So you just need another mini-van. Therefore, answer should be 31 buses and one mini-van.

3. Twelve students are left, another bus is needed for 12 students, so the answer is 32.

OR

4. Out of the 31 buses you can choose 12 buses to hold the 12 students, each bus holds 1 extra student. Therefore, you just need 31 buses.

How could this question be improved to elicit the desired student response?

Designing Classroom Assessments

Fundamental Questions

- What learning target are you assessing?
- What kind of evidence are you gathering?
- What levels of performance do you expect?
- What kind of "score" do you want?

Designing Multiple-Choice Tasks

Considerations:

- Correct response provided (substitution)
- Meaningful distractors
- No interference from distractors
- Not limited to "lower order skills"

Multiple-Choice Format

Maria had 8 crayons in a box. She took 2 crayons out of the box. How many crayons are left in the box?

- a. 2
- b. 6
- c. 8
- d. 10

Multiple-Choice Format With Opportunity for Student to Explain Answer

Maria had 8 crayons in a box. She took 2 crayons out of the box. How many crayons are left in the box? How did you know that is the right answer?

Student Responses

1. Maria took out 2 crayons and they were in the box. Two is the answer.
2. Maria took out 2 crayons and so 8 minus 2 equals six. Six is the answer.

3. Maria has 8 crayons in the box. The answer is eight.

4. Maria has 8 crayons and then she took out 2 so she has 10 now. The answer is ten.

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Higher Order Multiple-Choice Example

Sam has 4 toy trucks. Dale has 6 toy trucks. Which number sentence shows how to find out how many toy trucks Sam and Dale have altogether?

- a. $4 + 2$
- b. $4 + 6$
- c. $6 - 4$
- d. $4 - 2$

Math Multiple-Choice Example

Use the graph that shows the results of the survey to answer the question.

Consider a school of 2000 students. Based on the data in the graph, about how many of the 2000 students would you expect to choose fruit as their favorite snack?

- A. 750
- B. 400
- C. 150
- D. 100

Math Multiple-Choice Example

The athletic club is raising money for a class trip. They plan to sell banners with the school's name on them. The cost of each banner is \$3.50 and the printing cost of each is \$0.75. If the club plans on selling each banner for \$11.00, what is the **fewest** number of banners that the athletic club needs to sell to make a \$500.00 profit?

- A. 46
- B. 67
- C. 75
- D. 98

Activity Designing a Multiple Choice Task

- Refer to the corresponding activity sheet.
- Complete the sheet.
- Transfer your task onto an overhead transparency.
- Be prepared to discuss your task.

Designing Short-Answer Tasks

Considerations

- Correct response not provided (substitution)
- Limited response
- Less inference required

Short Answer Example

What is a light year?

Scoring Notes

2 points:

- distance light travels in one year
- unit of distance (used by astronomers)
- 9.5 trillion kilometers

1 point:

- distance or unit of measurement

0 point:

- longer than a leap year, every 2000 years
- a year away from Earth
- occurs when sun is aligned with the moon
- a year with more light on Earth

Short Answer Example

Name two short-term changes in the environment that could cause a population of bears to significantly decrease in number.

Scoring Notes

forest fire

flood

drought

earthquake

lack of food

hunting

more predators

disease

Designing Constructed-Response Tasks



Considerations

- Action words
- Openness
- Scorability

Action Words Found in Standards

Describe	Explain	Identify
Illustrate	Trace	Compare
Contrast	Predict	Apply
Sort	Justify	Analyze
Evaluate	Discuss	Define
List	Differentiate	Distinguish
Defend	Conclude	Categorize

Openness

- Questions that are too *open* are difficult for students to manage, and may provide little evidence of the learning to be examined
- Questions that are too *closed* may not provide enough breadth of performance, and may be better suited to another question type

Scorability

- Does the question provide for distinct levels of performance that are scorable?
- Are distinctions between score points important or trivial?

Scaffolding

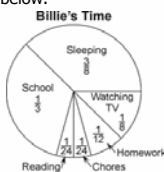
Mr. Miller's class is having a bake sale to raise money for a class trip. They hope to raise \$100. By the day of the sale, the students will bake 550 cookies. The class is thinking about charging 15¢ per cookie.

Scaffolding

- A. If Mr. Miller's students sell every cookie they baked for 15¢, how much money will they earn? Explain your answer.
- B. Some students think the cookies should be sold for 20¢ each. How much more money will the class earn if the students sell every cookie they baked for 20¢? Explain what you did to get your answer.
- C. Mr. Miller's students think that they will be able to sell only 400 cookies. What is the least they will have to charge for each cookie to be sure to raise \$100? Explain how you got your answer.

Constructed-Response Example

Billie spends the 24 hours of each day, Monday through Friday, as shown on the graph below.



How many hours each day does Billie spend on each activity shown in this graph?

Math Constructed-Response Example

A box contains six balls of the same size, numbered 1 through 6. One ball will be selected at random from this box.

- A. What is the probability of selecting an even-numbered ball? Explain your reasoning.
- B. What is the probability of selecting an odd-numbered ball? Explain your reasoning.
- C. Suppose you add balls of the same size, numbered 7 through 20, to the box. How would the probabilities you found in parts a and b change? Justify your reasoning.

BE SURE TO LABEL YOUR RESPONSES (a), (b), AND (c).

Math Constructed-Response Example

A school banner is 6 feet wide by 4 feet high.

- A. If the banner were 5 feet wide, how high would it have to be in order to have the same area as the first banner?
- B. Give **three** more examples of rectangular banners that would have areas the same as the first banner but with dimensions different from both the first banner and the banner in part A. Make the width greater than the height in each example.
- C. Suppose that the length of a rectangle with an area of 24 square units is unknown. Let x represent the length. Write an expression for the width in terms of x . Use this expression to write a formula for the perimeter, p , in terms of the unknown value, x .

Math Constructed-Response Example

The number of bacteria in a sample doubles every four hours. At the end of 24 hours there are 30,720 bacteria present in a sample.

- A. How many bacteria were present initially? Show your work.
- B. During which four-hour period will 5 million bacteria first be present. Show your work.
- C. Write a mathematical expression to determine the number of bacteria present at the end of any four-hour period.

Activity

Designing a Constructed-Response Task

- Refer to the corresponding activity sheet.
- Record your task on the activity sheet.
- Take into consideration how would score responses.
- Transfer your task to chart paper and post.
- Be prepared to make comments on other postings during a gallery walk. Use Post-it notes.

Designing a Scoring Guide

- Performance Standard Alignment
 - Align to state performance standards
 - Align to local performance standards
- Score Points
 - Number of distinct levels of performance

Designing a Scoring Guide

- Writing Scoring Criteria
 - Criteria match question
 - If the question asks for two examples, criteria should require two examples
 - Key characteristics at each level
 - Concentrate on differentiation of levels
 - Use student work to illustrate and refine

On-going Implementation

- Review assessments you have planned for up-coming instruction.
- Apply what you have learned about assessment methods and design considerations to these assessments.
- Record your thoughts and actions.
- And/or create new assessments applying the learning from today's session.
- In either case, did your actions improve the quality of student responses?
- Track your experiences as part of your professional growth.

Closing Reflections

Consider the round of sessions on classroom assessment you have participated in . . .

- Which segments were the most valuable to you?
- How will these improve your classroom assessment capabilities?
- As an educator, what is the benefit of understanding how curriculum, assessment and instruction are aligned?
- How will this alignment improve student learning?

Thank you for your participation!
